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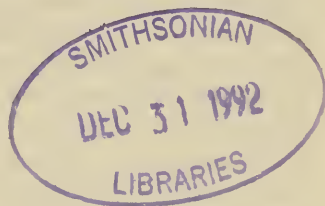
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Aphodiinae from Thailand (Coleoptera: Scarabaeidae)

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With 24 figures and 1 table



Summary

The present paper deals with a collection of Aphodiinae from Thailand. Of the 43 species recorded by now in Thailand (Table 1), 36 species are treated concerning distribution, comments, complementary descriptions and drawings of pertinent morphological details. Two genera and 25 species are indicated in Thailand for the first time and *Aphodius* (*Trichaphodius*) *lomsakensis* n. sp. is described.

Zusammenfassung

Die vorliegende Arbeit befaßt sich mit Aphodiinae aus Thailand. Von den jetzt 43 insgesamt für Thailand registrierten Arten (Tabelle 1) werden 36 behandelt hinsichtlich Verbreitung, einiger Bemerkungen, ergänzender Beschreibungen und Abbildungen morphologischer Details. 2 Gattungen und 25 Arten werden erstmals für dieses Land nachgewiesen, *Aphodius* (*Trichaphodius*) *lomsakensis* n. sp. wird beschrieben.

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1. Introduction

The following contribution has been accomplished on the base of the material collected in the recent years in Thailand and kindly submitted to me for examination by Dr. W. SCHAWALLER (SMNS, Stuttgart) and Prof. Dr. H. J. BREMER (Heidelberg).

The Indo-Malayan Aphodiinae include a number of diverse species that have not been systematically treated since PAULIAN's (1945) review. The number of 16 species recorded from Thailand in a series of the preceding papers, increases in the present report to 43 species belonging to the rather heterogeneous complex of 9 genera and 12 subgenera within the genus *Aphodius* Illiger.

Although the material studied is not a particularly large one and does not allow many definitive statements to be made concerning distributional patterns and biogeography of Indo-Malayan Aphodiinae, an approximate picture of the known distribution of the species found in Thailand is drawn in table 1, which also summarizes much of the data gained from the previous contributions.

Nearly all of the mentioned species are confined in general distribution to the tropical and subtropical areas. There is a small proportion of species shared with Palearctic Asia and extending as far as the Mekong river. A number of species have a fairly wide range in the Oriental Region, 13 species are common to Indonesia, three spread throughout the Pacific Islands to America and three to Australia. Four species are known today only from Thailand, however, the occurrence of local endemic taxa is hardly to be expected.

The majority of species (28) ascertained in Thailand are common to the adjacent Indo-Malayan territories (Laos, Vietnam, Burma) and 16 species (37,1% of the total) are shared with Nepal [for additional comparisons see STEBNICKA (1986, 1989, 1990a)].

Abbreviations employed below for the depositories of material and of relevant type-specimens are listed here:

- CB: Collection of Prof. Dr. H. J. BREMER (Heidelberg);
 ISEA: Institute of Systematic and Evolution of Animals, Polish Academy of Sciences (Cracow);
 MHNG: Muséum d'Histoire Naturelle (Genève);
 NMP: National Museum (Prague), Department of Entomology (BALTHASAR's collection);
 NRS: Naturhistoriska Riksmuseet (Stockholm);
 SMNS: Staatliches Museum für Naturkunde (Stuttgart).

Acknowledgements

I wish to express my cordial thanks to Dr. W. SCHAWALLER (Stuttgart) and to Prof. Dr. H. J. BREMER (Heidelberg) for the loan of valuable collections, as well as to the following persons and their respective institutions for making the type-specimens available to study: Dr. I. LÖBL (Genève), Dr. J. JELÍNEK (Prague), and Dr. P. LINDSKOG (Stockholm).

Table 1. Aphodiinae from Thailand with data to further distribution. The 36 species discussed in the present report are marked with an *asterisk*.

Species	Nepal	India	Burma Vietnam Laos	South China	Palaearctic Asia	Indo- nesia
* <i>Aphodius (Pharaphodius) marginellus</i> (Fabr.)	×	×	×	×		×
* <i>Aphodius (Pharaphodius) priscus</i> Motsch.	×		×			
* <i>Aphodius (Pharaphodius) orientalis</i> Har.	×		×	×		×
* <i>Aphodius (Pharaphodius) birmanicus</i> Petr.			×			
* <i>Aphodius (Pharaphodius) costatulus</i> A. Schm.	×	×	×			
* <i>Aphodius (Pharaphodius) crenatus</i> Har.	×	×	×	×		×
* <i>Aphodius (Pharaphodius) putearius</i> Reitt.			×	×		×
* <i>Aphodius (Paradidactylia) shantungensis</i> Blth.			×	×		
<i>Aphodius (Trichonotulus) khonensis</i> Stebn.						
* <i>Aphodius (Paulianellus) maderi</i> Blth.				×	×	
* <i>Aphodius (Trichaphodius) assamensis</i> Petr.		×				
* <i>Aphodius (Trichaphodius) segmentaroides</i> A. Schm.		×	×			
* <i>Aphodius (Trichaphodius) reichei</i> Har.			×	×		×
* <i>Aphodius (Trichaphodius) nigrovirgatus</i> A. Schm.	×	×	×	×		×
* <i>Aphodius (Trichaphodius) rangoonensis</i> Petr.	×		×			
* <i>Aphodius (Trichaphodius) commatoides</i> Blth.				×		
* <i>Aphodius (Trichaphodius) miksici</i> Blth.			×			×
* <i>Aphodius (Trichaphodius) fukiensis</i> Blth.				×		
* <i>Aphodius (Trichaphodius) lomsakensis</i> n. sp.						
* <i>Aphodius (Aganocrossus) urostigma</i> Har.	×	×	×	×	×	
* <i>Aphodius (Calaphodius) moestus</i> Fabr.	×	×	×	×	×	
* <i>Aphodius (Emadiellus) rufopustulatus</i> Wied.		×	×			
* <i>Aphodius (Plagiogonus) khaoensis</i> Stebn.						
* <i>Aphodius (Plagiogonus) palea</i> Blth.	×	×				
* <i>Aphodius (Mesontoplatys) sunantae</i> Stebn.						
<i>Aphodius (Nialus) lividus</i> (Ol.)	×	×	×	×	×	
* <i>Aphodius (Nialus) hoabinhensis</i> Blth.	×	×	×			
* <i>Aphodius (Calamosternus) sublimbatus</i> Motsch.					×	
<i>Oxyomus bremeri</i> Stebn.						
* <i>Cnematoplatys numensis</i> Stebn.	×					
* <i>Saprosites japonicus</i> Waterh.	×			×	×	
* <i>Saprosites coomani</i> Paul.			×			
* <i>Ataenius australasiae</i> (Boh.)			×	×		×
* <i>Ataenius orbicularis</i> A. Schm.			×			×
* <i>Ataenius nocturnus</i> Nom. & Nak.						×
<i>Psammodius thailandicus</i> (Blth.)						
* <i>Rhyssmodes sindicus</i> Pitt.	×	×	×	×		×
* <i>Rhyssemus inscitus</i> (Walk.)	×	×	×	×		×
<i>Rhyssemus feae</i> Clouët			×	×		
* <i>Rhyssemus tonkineus</i> Blth.			×			
* <i>Trichorhyssemus hirsutus</i> (Clouët)						×
<i>Pleurophorus cambeforti</i> Pitt.			×			
<i>Pleurophorus thailandicus</i> Pitt.						

2. List of the species

2.1. *Aphodius*, including key to the species of the subgenus *Trichaphodius*

2.1.1. *Aphodius (Pharaphodius) marginellus* (Fabricius)

Material: 45 ex. (CB, ISEA, SMNS) – Prov. Lampun, 10 km S Lampun, 9. X. 1982, leg. BREMER; – Khon Kaen, 21. V., 20.–21. VI., 2.–4. IX., 23. XI. 1980, at light, leg. SAOWAKONTHA; – Prov. Chiang Mai, 22. VII. 1982, leg. SA-NGUANSEMSI.

Remarks: Widespread species, recorded from Thailand by STEBNICKA (1986).

2.1.2. *Aphodius (Pharaphodius) priscus* Motschulsky

Material: 4 ex. (ISEA, SMNS) – Prov. Chiang Mai, 22. VII. 1982 leg. SA-NGUANSEMSI; – Chiang Mai, 21.–24. XII. 1981, 250 m, leg. TRAUTNER & GEIGENMÜLLER; – Khon Kaen, 20. VI. 1980, at light, leg. SAOWAKONTHA.

Remarks: The species is known from Vietnam, Thailand and Nepal (STEBNICKA 1986).

2.1.3. *Aphodius (Pharaphodius) orientalis* Harold (fig. 1)

Material: 2 ex. (CB, SMNS) – Prov. Chiang Mai, 13. II. 1982, leg. SA-NGUANSEMSI.

Remarks: Widespread species, new record for Thailand.

2.1.4. *Aphodius (Pharaphodius) birmanicus* Petrovitz (fig. 2)

1965 *Aphodius (Pharaphodius) birmanicus* Petrovitz, Mitt. zool. Mus., 41: 162–163.

Material: Holotype – Birma (MHNG); – 14 ex. (CB, ISEA, SMNS) – NE Thailand, Khon Kaen, 19. II. 1981, at light, leg. SAOWAKONTHA; – Prov. Chiang Mai, 5. III., 9. IV. 1982, leg. SA-NGUANSEMSI.

Remarks: The species was known up to now only from Burma. It is very closely related and probably often confused with *A. orientalis*, but differs by usually smaller size, by finer punctures of the head and pronotum and finer elytral striae. Both species were found in Thailand at the same locality. The third, very similar species *A. sundaicus* Balth. (fig. 3) described from Sulawesi, seems to be restricted to the Sunda Islands.

2.1.5. *Aphodius (Pharaphodius) costatulus* A. Schmidt

Material: 24 ex. (CB, ISEA, SMNS) – Prov. Chiang Mai, 14. VI., 22. VII. 1982, leg. SA-NGUANSEMSI; – Khon Kaen, 25. X., 23. XI. 1980, at light, leg. SAOWAKONTHA; – C Thailand, Lan Sak, 20 km W Uthai-Thani, VII. 1986, leg. THIELEN.

Remarks: Very common oriental species, recorded from Thailand by STEBNICKA (1986).

2.1.6. *Aphodius (Pharaphodius) crenatus* Harold

Material: 15 ex. (CB, ISEA, SMNS) – Prov. Roi Et, Kaset Wisai, 150 m, 14. XII. 1988, leg. TRAUTNER & GEIGENMÜLLER; – Chiang Mai, 14. VI. 1982, leg. SA-NGUANSEMSI; – Prov. Rayong, Muont Rayong, Ban Kuong Jog, 6. X. 1982; – Prov. Lampun, 10 km S Lampun, 8. X. 1982, leg. BREMER.

Remarks: Widespread species, new record for Thailand.

2.1.7. *Aphodius (Pharaphodius) putearius* Reitter (fig. 4)

Material: 4 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 23. XI. 1980, at light, leg. SAOWAKONTHA.

Remarks: The species belongs to the *Pharaphodius*-group II (STEBNICKA 1986, 1989) and resembles *A. robustus* Walk. very closely, however, in *A. putearius* the elytral striae are finer, strial punctures smaller and the intervals are completely flat on the disc. Widely distributed, occurs in Central and South China, Taiwan, Vietnam, Laos, Java and in Thailand (new record).

2.1.8. *Aphodius (Paradidactylia) shantungensis* Balthasar (figs. 5–6)

1941 *Aphodius (Trichonotulus) shantungensis* Balthasar, Ent. Blätter, 37: 88.

Material: Holotype – China, Shantung (NMP); – 25 ex. (CB, ISEA, SMNS) – S Thailand, vicinity of Narativath, V. 1983, at light, leg. PONGPAEW; – Khon Kaen, 10. IX. 1978, at light, leg. BREMER.

Remarks: The species is very closely related to *A. biseriatus* A. Schm. and very similar in general appearance, in size and colour, however, *A. shantungensis* is distinguished by having the anterior part of head narrower than in *biseriatus*, finer and equal punctures of pronotum and the elytral intervals with four to five rows of minute punctures bearing shorter setae. These two species are allopatric; *A. biseriatus* is distributed in the Indian subcontinent from Ceylon to the Kumaon Himalaya (STEBNICKA 1989), while *A. shantungensis* spreads from South China to Indonesia. It was recorded from Vietnam (Cochinchina, Annam) by BALTHASAR (1964) and most probably under the name *biseriatus* by PAULIAN (1945). I have examined the specimens from Vietnam (Hanoi) and from Indonesia (Bali). New record for Thailand.

2.1.9. *Aphodius (Paulianellus) maderi* Balthasar

Material: 1 ex. (SMNS) – Doi Sanjao, 1180 m, 12. II. 1986, at light, leg. SCHWENDINGER.

Remarks: The species is very similar to *A. murensis* Stebn. known from Nepal. It occurs in China, Taiwan, Japan and Korea (STEBNICKA 1980, 1981a); in the Indo-Malayan region it is mentioned for the first time.

2.1.10. *Aphodius (Trichaphodius) assamensis* Petrovitz (fig. 7)

1976 *Aphodius (Trichaphodius) assamensis* Petrovitz, Ent. Blätter, 72 (1): 8–9.

Material: 2 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 23. XI. 1980, at light, leg. SAOWAKONTHA.

Remarks: The males of *A. assamensis* are easily recognized by strongly widened and dorso-ventrally flattened metatibiae, on each side with two longitudinal rows of granules bearing erect setae; the other characters are very similar to those in *A. reichii* Har. On the other hand, the female is reminiscent of the females of *A. nigrovirgatus* A. Schm., differing by a long metatarsus equal to the remaining tarsal joints combined. The species seems to be rarely collected; it is hitherto known from two localities in Assam (STEBNICKA 1981b).

Most Oriental species of the subgenus *Trichaphodius* can hardly or not be identified by external characters because of advanced sexual dimorphism and individual varia-

bility. Owing to the fact that the morphological boundaries cannot be sharply delineated and the features of females overlap, the same collecting data for both sexes together can be an important aid to correct identification.

2.1.11. *Aphodius (Trichaphodius) segmentaroides* A. Schmidt (figs. 8–10)

Material: Type – Belgaum (NRS); – 1 ex. (SMNS) – N Thailand, Lom Sak, 40 km W Phetchabun, 120 m, VIII. 1987, leg. THIELEN.

Complementary description: Epipharynx: epitorma lightly sclerotized; the bristles of the chaetoparia moderately long, rather thin; 8–9 bristles of the chaetopodium the same size as those of the chaetoparia, the remaining setae short and thin; acroparia with long, thin hairs.

Remarks: Superficially, *A. segmentaroides* is similar to *A. reichei*, but differs in having the sides of pronotum more or less strongly emarginate, never arcuate as in *reichei*, and the elytra slightly deplanate and alutaceous, nearly mat. The species is rarely collected, recorded from India, Vietnam and Laos (PAULIAN, 1945). I have seen a number of specimens from Burma – Washaung (NRS).

2.1.12. *Aphodius (Trichaphodius) reichei* Harold (figs. 11–12)

Material: 1 ex (SMNS) – C Thailand, Krok-Phra, 10 km S Nakhou Sawan, 50 m, VII. 1986, leg. THIELEN.

Remarks: The species is very variable in the shape and in the punctation of body. Widespread, occurs in South China, Taiwan, Vietnam, Laos, Philippines, Indonesia to Australia. New record for Thailand.

2.1.13. *Aphodius (Trichaphodius) nigrovirgatus* A. Schmidt

Material: 6 ex. (ISEA, SMNS) – Prov. Chiang Mai, Doi Inthanon, 1300 m, 22. V. 1987; – 10 km E Fang, 1460 m, 20.–23. V. 1986, at light, leg. SCHWENDINGER.

Remarks: Widespread species, known from India, Nepal, South China, Vietnam, Laos and Sulawesi (STEBNICKA 1986); new record for Thailand.

2.1.14. *Aphodius (Trichaphodius) rangoonensis* Petrovitz

Material: 4 ex. (ISEA, SMNS) – Prov. Chiang Mai, 22. VII. 1982, leg. SA-NGUANSEMSI; – Doi Angkhang, 10 km W Fang, 1450 m, 22. IV. 1987, leg. SCHWENDINGER; – Prov. Ban Yang, 24 km S Fang, 11. X. 1982, leg. BREMER.

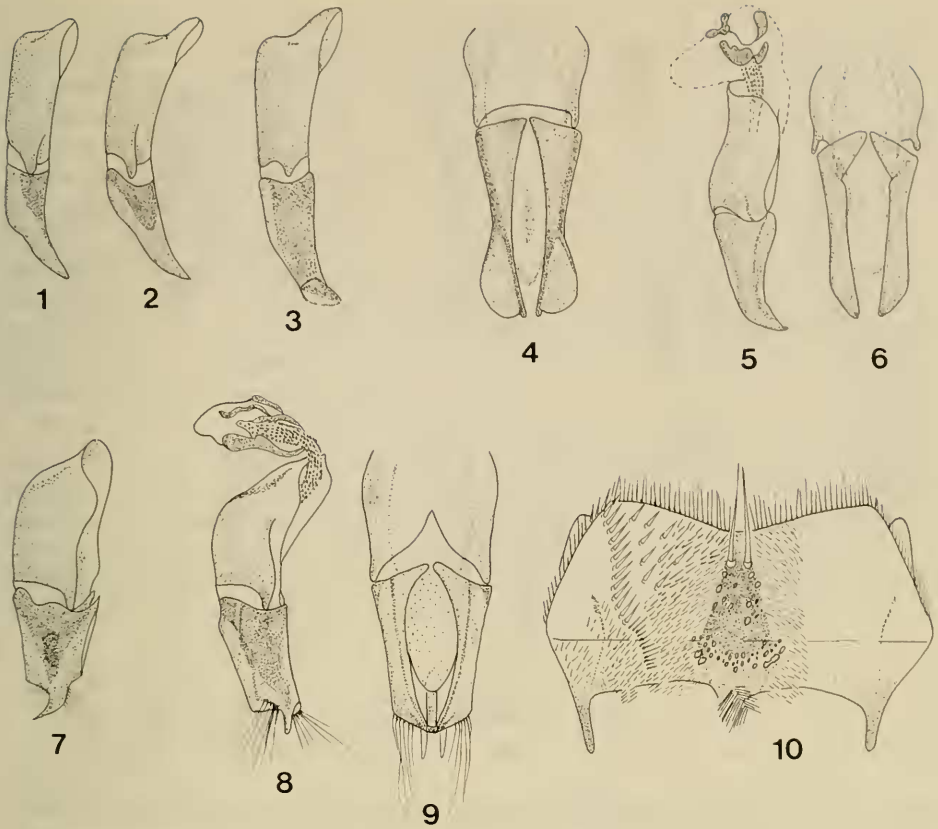
Remarks: The species is hitherto known from Nepal, Bhutan and Burma (STEBNICKA 1986).

2.1.15. *Aphodius (Trichaphodius) commatoides* Balthasar (figs. 13–15)

1961 *Aphodius (Trichaphodius) commatoides* Balthasar, Acta Ent. Mus. Nat. Pragae, 34: 371.

Material: Holotype – China, Fukien, Shaovu, 500 m (NMP); – 10 ex. (CB, ISEA, SMNS) – N Thailand, Prov. Chiang Mai, Ban Yang, 24 km S Fang, 11. X. 1982, in horse dung, leg. BREMER.

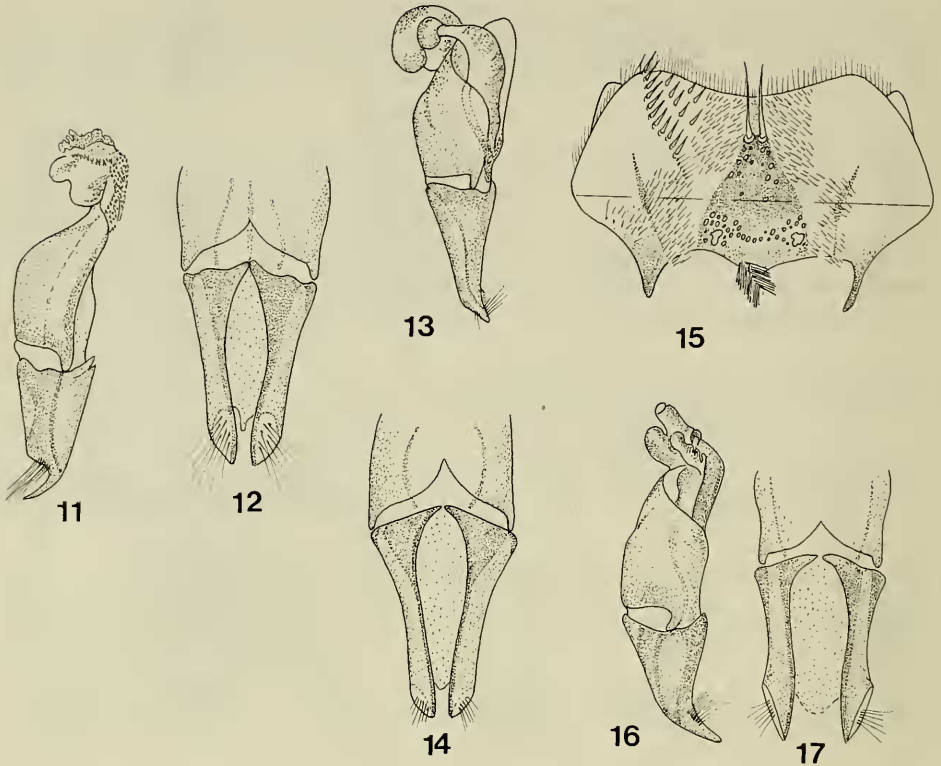
Complementary description: Epipharynx: epitorma lightly sclerotized; the bristles of the chaetoparia moderately long, rather thin, the same size as 8–9 bristles of the chaetopodium; the remaining setae of the pedium and paria short and thin.



- Fig. 1. *Aphodius (Pharaphodius) orientalis* Har., aedeagus (lateral view).
 Fig. 2. *Aphodius (Pharaphodius) birmanicus* Petr., aedeagus (lateral view).
 Fig. 3. *Aphodius (Pharaphodius) sundaicus* Blth., aedeagus (lateral view).
 Fig. 4. *Aphodius (Pharaphodius) putearius* Reitt., aedeagus (dorsal view).
 Figs. 5-6. *Aphodius (Paradidactylia) shantungensis* Blth., aedeagus (lateral and dorsal view).
 Fig. 7. *Aphodius (Trichaphodius) assamensis* Petr., aedeagus (lateral view).
 Figs. 8-10. *Aphodius (Trichaphodius) segmentaroides* A. Schm. - 8-9. aedeagus (lateral and dorsal view); - 10. epipharynx.

Remarks: Diagnostic characters include the very indistinct, extremely short and scarce pubescence of the head and sides of pronotum as well as the elytral intervals convex on the disc and completely flat at the apex. The males are characterized by significantly widened meso- and metatibiae with long and thick apical setae. *A. com-matoides* resembles *A. miksici* very closely by the same size, shape of the body and kind of elytral pubescence, but it is lighter in colour with usually well defined sub-apical spots in elytra.

The species is known up to now only from China; in Indo-Malaya it is mentioned for the first time.



- Figs. 11–12. *Aphodius (Trichaphodius) reichel* Har., aedeagus (lateral and dorsal view).
 Figs. 13–15. *Aphodius (Trichaphodius) commatoides* Blth. — 13–14. aedeagus (lateral and dorsal view); — 15. epipharynx.
 Figs. 16–17. *Aphodius (Trichaphodius) miksici* Blth., aedeagus (lateral and dorsal view).

2.1.16. *Aphodius (Trichaphodius) miksici* Balthasar (figs. 16–17)

1960 *Aphodius (Trichaphodius) miksici* Balthasar, Opusc. Zool., München, 44: 7.

Material: Holotype — Java, Palabuan (NMP); — 54 ex. (CB, ISEA, SMNS) — NE Thailand, Khon Kaen, 10. IX. 1978, at light, leg. BREMER; — 18. V., 20. X. 1979, leg. AUMPHAN-SIRI; — 24. III.–24. X. 1980, at light, leg. SAOWAKONTHA; — Prov. Chiang Mai, 9. X. 1981, 9. IX. 1982, leg. SA-NGUANSEMSI; — N Thailand, Lom Sak, 40 km N Phetchabun, 120 m, VIII. 1987, leg. THIELEN; — C Thailand, Krok-Phra, 10 km S Nakhou-Sawan, 50 m, VII. 1986, leg. THIELEN; — C Thailand, Lan-Sak, 20 km W Uthai-Thani, VII. 1986, leg. THIELEN.

Remarks: *A. miksici* is very close to *A. nigrovirgatus*, but it is noticeably smaller with shorter, egg-shaped elytra that are in both sexes rather scarcely and shortly piliferous with slightly darkened sutural intervals. The shape and structure of epipharynx are nearly the same as in *A. commatoides*.

2.1.17. *Aphodius (Trichaphodius) fukiensis* Balthasar (figs. 18–20)

1952 *Aphodius (Trichaphodius) fukiensis* Balthasar, Acta Ent. Mus. Pragae, 28: 234.

Material: Type female — China, Kuatun, Fukien (NRS), male the same data (NMP); — 1 ex. (SMNS) — Prov. Chiang Mai, Doi Suthep, 700 m, XI. 1987, barber trap, leg. SCHWENDINGER.

Complementary description: Length 3.8–4.0 mm, body elongate oval; colour yellowish brown, middle of clypeus, disc of pronotum, sutural intervals of elytra and subapical spots darker. Head large, clypeus truncate anteriorly. Pronotum rectangular, sides arcuate, base without marginal line, surface punctures moderate, concentrated on the sides. Elytra egg-shaped, widest at middle with short and scarce pubescence limited to the apical declivity; striae fine with fine punctures slightly crenating inner margins of the intervals; intervals entirely flat, very minutely alutaceous, finely punctate only in hairy area. Apical setae of meso- and metatibiae long and thick, unequal in length; metatarsus equal in length to the next three segments combined. Male: meso- and metatibiae much more robust than in female. Epipharynx: epitorma lightly sclerotized; the bristles of the chaetoparia rather short and thin; 8–10 bristles of the chaetopodium the same length as those of chaetoparia, somewhat thicker; the acroparia with long, thin setae.

Remarks: As far as I know, since the original description of this species no additional specimens were found up to the present. The characters of *A. fukiensis* seem to correspond with those given by PAULIAN (1945) in the description of *A. seguyi* from Laos, however, this extremely poor diagnosis repeated subsequently by BALTHASAR (1964) may be applied to the very similar *A. miksici* and to *A. commatoides* as well. Because I have not seen the type-specimen of *A. seguyi* Paulian, the priority of name for one of the mentioned species remains uncertain.

2.1.18. *Aphodius (Trichaphodius) lomsakensis* n. sp. (figs. 21–23)

Holotype: ♂ (SMNS), N Thailand, Lom Sak, 40 km N Phetchabun, 120 m, VIII. 1987, leg. THIELEN.

Paratypes: 2 ex. ♀♀ (SMNS), 1 ex. ♀ (ISEA), same data as holotype.

Description: Length 4.5–5.0 mm, body elongate oval, moderately convex, shining; colour brown, anterior of head, sides and pronotum and apical declivity of elytra lighter, subapical darker spots of elytra faintly marked or lacking.

Head semicircular, clypeus inconspicuously emarginate anteriorly, sides nearly straight to small, right-angled, slightly protruding genae; eyes large, frontal suture slightly impressed, surface punctures fine, evenly distributed.

Pronotum rectangular, sides finely margined and arcuate in anterior half, then straight toward obtuse posterior angles, base without marginal line, the punctures mixed very fine to moderate, concentrated on the sides.

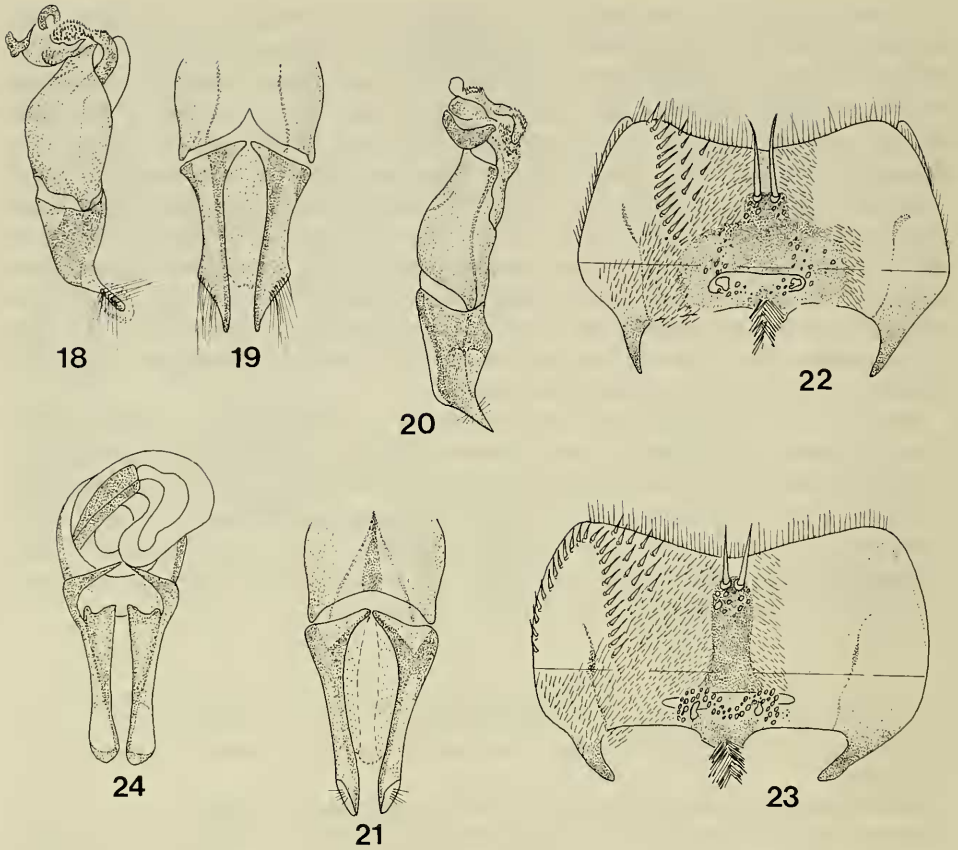
Scutellum narrowly triangular, impunctate.

Elytra suboval, slightly widened toward apex, striae finely impressed and punctate, intervals moderately convex in basal half, toward apex becoming completely flat.

Abdominal sterna shining, nearly impunctate and nude, only 5th and 6th with a few long, erect hairs; metasternal line feebly impressed.

Terminal spur of anterior tibia in both sexes directed somewhat downward; apical setae of meso- and metatibiae unequal in length, rather long, apical spurs thin; tarsi long and thin; metatarsus one-third longer than the upper tibial spur and equal the length to the next three segments combined; the claw-segment nearly as long as the two preceding segments combined.

The epitorma of the epipharynx well sclerotized; bristles of the chaetoparia moderately long and moderately thick; numerous bristles of the chaetopodium the same



- Figs. 18–20. *Aphodius (Trichaphodius) fukiensis* Blth. – 18–19. aedeagus (lateral and dorsal view); – 20. epipharynx.
 Figs. 21–23. *Aphodius (Trichaphodius) lomsakensis* n. sp. – 21–22. aedeagus (lateral and dorsal view); – 23. epipharynx.
 Fig. 24. *Saprosites coomani* Paul., aedeagus (ventral view).

size as those of the chaetoparia; the remaining setae of pedium and paria thin, gradually decreasing in size toward crepis.

Male: The punctures of head superficial, pronotum with a group of very fine and moderate punctures concentrated on lateral declivity, the remaining punctures very fine, evenly spaced on disc. Elytra piliferous in apical 2/3 with dense, somewhat wrinkled punctures on hairy area; striae finer than in female, less distinctly punctate, meso- and metatibiae thicker, widened toward apex; metasternum flat with fine punctures bearing very short setae; aedeagus as in figs. 21–22.

Female: The punctures of head deeper than in male, pronotum narrower and distinctly, doubly punctate from discal area to the lateral margin; elytra nearly nude, only very short and scarce setae visible near apical margin; strial punctures slightly crenating inner margins of the intervals; meso- and metatibiae slender, faintly widened toward apex; metasternum convex, minutely punctate and nude.

Remarks: The new species is similar to *A. nigrovirgatus*, from which it may be separated by the characters given in the key and by the features of male aedeagus. Additionally the very long and thin tarsi distinguish *A. lomsakensis* from the remaining, very similar species.

Key to the species of the subgenus *Trichaphodius* A. Schmidt from Thailand

- 1 Apical declivity of elytra with lighter, distinctly marked spots surrounded by darker, brownish black area 2
- Apical declivity of elytra with very indistinct lighter spots or lighter spots lacking, only brownish black area occurs 3
- 2 Robust species, about 4.8–6.0 mm in length; anterior part of head unicolored, clypeus slightly emarginate anteriorly; elytra minutely shagreened, apex of elytra mat. Male: elytra densely piliferous in apical 2/3, intervals with moderate punctures, apical spur of anterior tibia rounded at the tip. Female: elytra shortly and scarcely piliferous in apical third or at apex only. *A. (T.) reichei*
- Slender species, about 4.0–4.5 mm in length; anterior part of head with lighter spots on each side, clypeus truncate anteriorly; elytra not shagreened, apex of elytra shining. Male: elytra scarcely piliferous in apical half, intervals minutely punctate, apical spur of anterior tibia rounded at the tip. Female: elytra very shortly and scarcely piliferous in apical third *A. (T.) commatoides*
- 3 Larger species, about 4.5–5.0 mm in length; elytra elongate oval 4
- Smaller species, about 3.8–4.0 mm in length; elytra egg-shaped 7
- 4 Base of pronotum finely but distinctly margined 5
- Base of pronotum without marginal line 6
- 5 Elytra shagreened, nearly mat, in both sexes rather scarcely piliferous in apical half and on the sides; sides of pronotum significantly emarginate at middle. Male: elytral intervals slightly convex or flat, apical spur of anterior tibia rounded at the tip. Female: elytral intervals more convex than in male *A. (T.) segmentaroides*
- Elytra moderately shining but not shagreened; sides of pronotum continuously rounded. Male: elytra closely piliferous and densely punctate in apical 2/3 or more, apical spur of anterior tibia rounded at the tip. Female: elytra shortly and scarcely piliferous in apical third, with minute scattered punctures *A. (T.) nigrovirgatus*
- 6 Metatarsus equal in length to the remaining joints combined. Male: elytra densely piliferous in apical 2/3 with coarse punctures along striae; metatibiae strongly widened and dorso-ventrally flattened; apical spur of anterior tibia robust, rounded at the tip. Female: elytra scarcely piliferous only at apex, the punctures minute and scattered; metatibiae cylindrical, slender *A. (T.) assamensis*
- Metatarsus significantly shorter than the remaining joints combined. Male: elytra piliferous in apical 2/3 with dense, somewhat wrinkled surface punctures; metatibiae moderately widened, cylindrical; apical spur of anterior tibia slender, rounded at the tip. Female: elytra nearly nude, the punctures minute and scattered *A. (T.) lomsakensis* n. sp.
- 7 Elytra in both sexes scarcely and very shortly piliferous only at apex; metatarsus nearly twice as long as the upper tibial spur. Male: apical spur of anterior tibia short, widened and truncate with minute denticle at inner side of apex *A. (T.) fukiensis*
- Elytra in both sexes distinctly piliferous in apical half and on the sides; metatarsus one third longer than the upper tibial spur. Male: apical spur of anterior tibia of different shape 8
- 8 Elytral striae fine, intervals flat or faintly convex. Male: apical spur of anterior tibia hooked inwardly at the tip *A. (T.) rangoonensis*
- Elytral striae stronger, intervals convex. Male: apical spur of anterior tibia straight, rounded at the tip *A. (T.) miksici*

2.1.19. *Aphodius (Aganocrossus) urostigma* Harold

Material: 15 ex. (CB, ISEA, SMNS) – Prov. Lampun, 10 km S Lampun, 9. X. 1982, in cow dung; – Prov. Rayong, Muont Rayong, Ban Kuong Jog, 6. X. 1982, leg. BREMER; – Prov. Chiang Mai, 9. IV. 1982, leg. SA-NGUANSEMSI; – Chiang Mai, 14.–15. I. 1989, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: Widespread species, new record for Thailand.

2.1.20. *Aphodius (Calaphodius) moestus* Fabricius

Material: 5 ex. (CB, SMNS) – Prov. Rayong, Muont Rayong, Ban Kuong Jog, 6. X. 1982, in cow dung, leg. BREMER; – Prov. Chiang Mai, Chiang Mai, 250 m, 14.–15. I. 1989, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: Widely distributed species, recorded from Thailand by PAULIAN (1945).

2.1.21. *Aphodius (Emadiellus) rufopustulatus* Wiedemann

Material: 1 ex. (CB) – Prov. Lampun, 10 km S Lampun, 9. X. 1982, in cow dung, leg. BREMER.

Remarks: This very rarely collected species was recorded from India, Vietnam, Cambodja (PAULIAN 1945) and from West Pakistan (STEBNICKA 1989). It is mentioned in Thailand for the first time.

2.1.22. *Aphodius (Plagiogonus) khaoensis* Stebnicka

1988 *Aphodius (Plagiogonus) khaoensis* Stebnicka, Revue suisse Zool., 95 (4): 963–964, figs. 4–5.

Material: 17 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 23. XI. 1980, at light, leg. SAOWAKONTHA.

Remarks: The species resembles *A. culminarius* Reitt. (= *burgaltaicus* Csiki) very closely, however, the unicolored brownish yellow or yellow body, pronotal punctures mixed fine to coarse, very long tibial setae and metatarsus quite equal in length to the next three segments combined, distinguish *A. khaoensis*. It is hitherto known only from Thailand.

2.1.23. *Aphodius (Plagiogonus) palea* Balthasar

Material: 2 ex. (SMNS) – Prov. Chiang Mai, Doi Suthep, 1180 m, barber trap, XII. 1986, leg. SCHWENDINGER; – Prov. Chiang Mai, Doi Pul, 1500 m, 19. XII. 1988, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: *A. palea* has been originally described from India – Darjeeling (BALTHASAR 1967); recorded from Nepal by STEBNICKA (1986). It appears to occur in the mountainous zone of Indo-Malaya reaching the Eastern Himalayas in the west. First record for Thailand.

2.1.24. *Aphodius (Mesontoplatys) sunantae* Stebnicka

1981 *Aphodius (Mesontoplatys) sunantae* Stebnicka, Bull. Acad. pol. sci., Sér. Sci. Biol., 29 (7–8): 330–331, figs. 7–8.

Material: 2 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 2. IX. 1980, leg. SAOWAKONTHA.

Remarks: The species has been originally described on the base of a series of specimens collected in Khon Kaen during various seasons; known only from Thailand.

2.1.25. *Aphodius (Nialus) hoabinhensis* Balthasar

Material: 22 ex. (CB, ISEA, SMNS) – Prov. Rayong, Muont Rayong, Ban Kuong Jog, 6. X. 1982, in cow dung, leg. BREMER; – Prov. Chiang Mai, Chiang Mai, 21.–24. XII. 1988, leg. TRAUTNER & GEIGENMÜLLER; – Khon Kaen, 27. V. 1979, leg. SAOWAKONTHA; – 20. VI. 1980, at light, leg. AUMPHANSIRI; – C Thailand, Lan-Sak, 20 km W Uthai-Thani, VII. 1986, leg. THIELEN.

Remarks: *A. hoabinhensis* (= *insularis* Petr.) has been originally described from Vietnam, secondly from Ceylon and afterwards recorded from India, Nepal and Thailand (STEBNICKA 1989).

2.1.26. *Aphodius (Calamosternus) sublimbatus* Motschulsky

Material: 1 ex. (SMNS) – Prov. Chiang Mai, Chiang Mai, 250 m, 14.–15. I. 1989, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: The species commonly occurs in East Siberia, Manchuria, China, Taiwan, Japan and Korea (STEBNICKA 1980); it is found in Indo-Malaya for the first time.

2.2. *Cnematoplatys*

2.2.1. *Cnematoplatys numensis* Stebnicka

1986 *Cnematoplatys numensis* Stebnicka, Stuttgarter Beitr. Naturk., Ser. A, 397: 44–45, figs. 97–98.

Material: 2 ex. (SMNS) – Prov. Chiang Dao, Doi Chiang Dao, 1400 m, 7. I. 1989, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: The specimens from Thailand compared with those from Nepal are lighter in colour with somewhat finer marginal line of pronotum and less exposed humeral denticles; the structure of the upper side of the body and other characters are nearly the same. The species is probably of Indo-Malayan origin spreading throughout the mountainous areas; found in Nepal at 800 m above sea level.

2.3. *Saprosites*

2.3.1. *Saprosites japonicus* Waterhouse

Material: 1 ex. (SMNS) – Prov. Chiang Mai, Doi Suthep, 1050 m, 5. XI. 1985, leg. BURCKHARDT & LÖBL.

Remarks: The species is known from Japan, Taiwan, China, Vietnam, Bhutan and Nepal (STEBNICKA 1986); first record for Thailand.

2.3.2. *Saprosites coomani* Paulian (fig. 24)

1933 *Saprosites Coomani* Paulian, Bull. Soc. ent. France, p. 135.

Material: 11 ex. (ISEA, MHNG, SMNS) – Prov. Chiang Mai, Doi Suthep, 930 m, 22. XI. 1988, leg. SCHWENDINGER; – 1050 m, 5. XI. 1985, leg. BURCKHARDT & LÖBL; – road to Wab Pang An, 50 km NE Chiang Mai, 900 m, 3. XI. 1985; – Mae Nang Kaeo, 900 m, 54 km NE Chiang Mai, 3. XI. 1985; – NE Bangkok, Khao Yai Nat. Park, 750–850 m, 26. XI.–3. XII. 1985, leg. BURCKHARDT & LÖBL.

Remarks: *S. coomani* is superficially close to *S. japonicus* but it is different in detailed comparison; the head is larger than in *japonicus* with slightly convex frontal suture and the pronotal punctation is denser.

I have not seen the type-specimen of *S. coomani* Paulian, besides the taxonomy of the Oriental species of *Saprosites* Redt. is very unclear and needs a separate revision. For that reasons the identity of this species is not quite certain. It was listed by PAULIAN (1945) from Tonkin (Hoa Binh) and again by BALTHASAR (1964) who indicated its similarity to *S. japonicus*.

2.4. *Ataenius*

2.4.1. *Ataenius australasiae* (Boheman)

1933 *Ataenius nigricans* Paulian, Bull. Soc. ent. France, p. 136.

Material: Type of *nigricans* – Tonkin (NRS); – 10 ex. (ISEA, SMNS) – Prov. Chiang Mai, Chiang Mai, 250 m, 24.–25. I. 1989, leg. TRAUTNER & GEIGENMÜLLER; – Khon Kaen, 23. VI. 1981, leg. SAOWAKONTHA; – S. Thailand, vicinity of Narativath, V. 1983, at light, leg. PONGPAEW.

Remarks: The species was recorded from Thailand by PAULIAN (1945) and by BALTHASAR (1964); its taxonomical status, synonymies and distribution were presented by STEBNICKA (1990b).

2.4.2. *Ataenius orbicularis* A. Schmidt

Material: Type – Samoa Islands (NRS); – 42 ex. (CB, ISEA, SMNS) – Prov. Chiang Mai, Chiang Mai, 250 m, 21.–24. XII. 1988, 15. I., 24.–25. I. 1989, leg. TRAUTNER & GEIGENMÜLLER; – 5. III., 19. IV. 1982, leg. SA-NGUANSEMSI; – Khon Kaen, 19. II. 1981, at light, leg. SAOWAKONTHA; – Bangkok, 7. X. 1982, leg. BREMER.

Remarks: Widespread species, known from Vietnam, Malaya, Borneo and Micronesia, recorded from Thailand by STEBNICKA (1991).

2.4.3. *Ataenius nocturnus* (Nomura & Nakane)

1943 *Saprosites nocturnus* Nomura & Nakane, Mushi, 15: 77.

Material: 24 ex. (ISEA, SMNS) – N Thailand, Khon Kaen, at light, 30. I. 1980, leg. AUMPHANSIRI; – 23. VI. 1981, leg. SAOWAKONTHA.

Remarks: *A. nocturnus* (= *sumatrensis* Balth.) is known from the United States (California, Arizona) and Micronesia; I have examined the specimens from Sulawesi and Thailand (first record).

The species belongs to the group of very similar-appearing species that includes *A. gracilis* Melsh. and *A. peregrinator* Har. It may be separated from *gracilis* by smooth, evenly convex elytral intervals, from *peregrinator* by rounded clypeal margin without trace of denticles. *A. peregrinator* has been ascertained in Borneo, Sulawesi and Micronesia; recorded from Vietnam (Cochinchina, Saigon) by PAULIAN (1945). *A. gracilis* inhabits America.

2.5. *Rhyssmodes*

2.5.1. *Rhyssmodes indicus* Pittino

Material: 53 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 23. XI. 1981, at light, leg. SAOWAKONTHA; – C Thailand, Lan Sak, 20 km W Uthai-Thani, VII. 1986, leg. THIELEN; –

Prov. Chiang Mai, Chiang Mai, 250 m, 21.–24. XII. 1988, 15. I. 1989, leg. TRAUTNER & GEIGENMÜLLER.

Remarks: Widely distributed in Oriental Region, recorded from Thailand by PITTINO (1984).

2.6. *Rhyssemus*

2.6.1. *Rhyssemus inscitus* Walker

Material: 1 ex. (SMNS) – NE Thailand, Khon Kaen, at light, 26. V. 1980, leg. SAOWA-KONTHA.

Remarks: Widespread from Madagascar throughout Oriental Region to Australia. First record for Thailand.

2.6.2. *Rhyssemus tonkineus* Balthasar

1945 *Rhyssemus tonkineus* Balthasar, Acta ent. bohemoslovaca, 42: 111.

Material: 1 ex. (SMNS) – C Thailand, Lan-Sak, 20 km W Uthai-Thani, VII. 1986, leg. THIELEN.

Remarks: The species is known up to now only from North Vietnam (vicinity of Hoa-Binh). New record for Thailand.

2.7. *Trichiorhyssemus*

2.7.1. *Trichiorhyssemus hirsutus* (Clouët)

Material: 2 ex. (ISEA, SMNS) – NE Thailand, Khon Kaen, 27. V. 1980, at light, leg. SAOWAKONTHA.

Remarks: The species occurs in South East Asia, Indonesia and Pacific Islands (RAKOVIČ 1987). First record for Thailand.

3. References

Here only publications mentioned in the text are listed, further literature is cited at the beginning of some species chapter.

- BALTHASAR, V. (1964): Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region. Coleoptera Lamellicornia. Band 3: Aphodiidae, 652 pp; Praha.
- (1967): Neue Arten der Familie Aphodiidae. – Acta ent. bohemoslovaca, 64: 122–139; Praha.
- PAULIAN, R. (1945): Faune de l'Empire Français. Coleoptères Scarabeides de l'Indochine. 1 Pt., 3: 1–228; Paris.
- PITTINO, R. (1984): Taxonomic considerations on types revisions, lectotypes designations and descriptions of new or little known Psammodiini from Palaearctic, Oriental and Ethiopian Regions (Coleoptera Aphodiidae), (XXVI contribution to the knowledge of Coleoptera Scarabaeoidea). – G. it. Ent., 2: 13–97; Milano.
- RAKOVIČ, M. (1987): A contribution to the knowledge of *Trichiorhyssemus* Clouët species from the Oriental Region, New Guinea and Pacific Islands. – Annot. zool. bot., 182: 1–14; Bratislava.
- STEBNICKA, Z. (1980): Scarabaeoidea (Coleoptera) of the Democratic People's Republik of Korea. – Acta zool. cracov., 24 (5): 191–298; Kraków.
- (1981a): Three new species of *Aphodius* Illig. (Coleoptera, Scarabaeidae). – Bull. Akad. pol. Sci., (Sér. Sci. Biol.), 28: 531–537; Warszawa.

- (1981b): Aphodiinae from the Himalayas, Assam and Sri Lanka (Col., Scarabaeidae). – Ent. Basiliensia, 6: 319–327; Basel.
- (1986): Revision of the Aphodiinae of the Nepal-Himalayas (Coleoptera: Scarabaeidae). – Stuttgarter Beitr. Naturk., (Ser. A), 397: 1–51; Stuttgart.
- (1989): Revision of the Aphodiinae of the Western Himalayas (Coleoptera: Scarabaeidae). – Stuttgarter Beitr. Naturk., (Ser. A), 441: 1–29; Stuttgart.
- (1990a): Further Aphodiinae from the Eastern Nepal-Himalayas (Coleoptera: Scarabaeidae). – Stuttgarter Beitr. Naturk., (Ser. A), 449: 1–14; Stuttgart.
- (1990b): New synonymies and notes on some Aphodiinae (Coleoptera: Scarabaeidae). – Revue suisse Zool., 97 (4): 895–899; Genève.
- (1991): Aphodiinae from Sabah (Coleoptera: Scarabaeidae). – Revue suisse Zool., 98 (1): 3–7; Genève.

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